

What is claimed is:

1. A variable volume metering chamber and valve assembly for use with a combustion-powered tool, said assembly comprising:

5 a housing defining a metering chamber having an internal volume and including an inlet and an outlet; and
means for adjusting the internal volume of said metering chamber.

2. The valve assembly of claim 1 wherein said means for
10 adjusting is accessible externally of said housing.

3. The valve assembly of claim 1 wherein said means for adjusting includes a plunger configured for adjustable reciprocation relative to said metering chamber.
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4. The valve assembly of claim 3 wherein said means includes a sleeve configured for mounting in operational relationship to said housing and to reciprocally accommodate said plunger.

20 5. The valve assembly of claim 4 wherein at least a portion of said sleeve and said plunger are threadably engaged relative to each other to adjust the amount of insertion of said plunger into said metering chamber.

6. The valve assembly of claim 4 further including a seal for
25 sealing at least one of said plunger and said sleeve relative to said metering chamber.

7. A variable volume metering chamber and valve assembly for use with a combustion-powered tool, said assembly comprising:

a housing defining a metering chamber having an internal volume and including an inlet and an outlet; and

a plunger configured for reciprocal movement relative to said chamber for adjusting the internal volume of said metering chamber.

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8. The valve assembly of claim 7 further including a sleeve configured for mounting in operational relationship to said housing and to reciprocally accommodate said plunger.

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9. The valve assembly of claim 8 wherein at least a portion of said sleeve and said plunger are threadably engaged relative to each other to adjust the amount of insertion of said plunger into said metering chamber.

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10. The valve assembly of claim 8 further including a seal for sealing at least one of said plunger and said sleeve relative to said metering chamber.

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11. The valve assembly of claim 7 wherein said valve has an axis of operation, and wherein said plunger is reciprocal along an axis which is generally normal to said axis of operation.

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12. The valve assembly of claim 7 wherein said plunger is offset from a vertical plane bisecting said chamber in the direction of reciprocal movement of said plunger.

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13. The valve assembly of claim 8 wherein said sleeve is heated.

14. The valve assembly of claim 7 further including:
a first spring-biased valve disposed in said housing to control fluid flow through said inlet;

a second spring-biased valve disposed in said housing to control fluid flow through said outlet;

an actuator assembly, connected to said first and second spring-biased valves and sequentially operable from a first position, in which said first
5 spring-biased valve is open and said second spring-biased valve is closed, to a second position, in which said first and second spring-biased valves are both closed, and a third position, in which said first spring-biased valve is closed and said second spring-biased valve is open; and

said valve assembly being configured and arranged so that a volume
10 of fluid entering said chamber from said inlet in said first position is collected in said metering chamber, sealed within said metering chamber in said second position, and released from said metering chamber in said third position to provide a constant volume of fluid for each sequential movement of said actuator from said first position to said third position.

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15. A variable volume metering chamber and valve assembly for use with a pressurized fluid supply containing a fluid in a combustion-powered tool, said assembly comprising:

a housing defining a metering chamber having a plurality of ports
20 including an inlet and an outlet;

a first spring-biased valve disposed in said housing to control fluid flow through said inlet;

a second spring-biased valve disposed in said housing to control fluid flow through said outlet;

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an actuator assembly, connected to said first and second spring-biased valves and sequentially operable from a first position, in which said first spring-biased valve is open and said second spring-biased valve is closed, to a second position, in which said first and second spring-biased valves are both closed, and a third position, in which said first spring-biased valve is closed and
30 said second spring-biased valve is open;

said valve assembly being configured and arranged so that a volume of fluid entering said chamber from said inlet in said first position is collected in said metering chamber, sealed within said metering chamber in said second position, and released from said metering chamber in said third position to provide
5 a constant volume of fluid for each sequential movement of said actuator from said first position to said third position; and

a heater provided in operational relationship to said housing for heating said metering chamber.

10 16. The valve assembly of claim 15, wherein said heater is a heating element fixed to said housing adjacent said metering chamber.